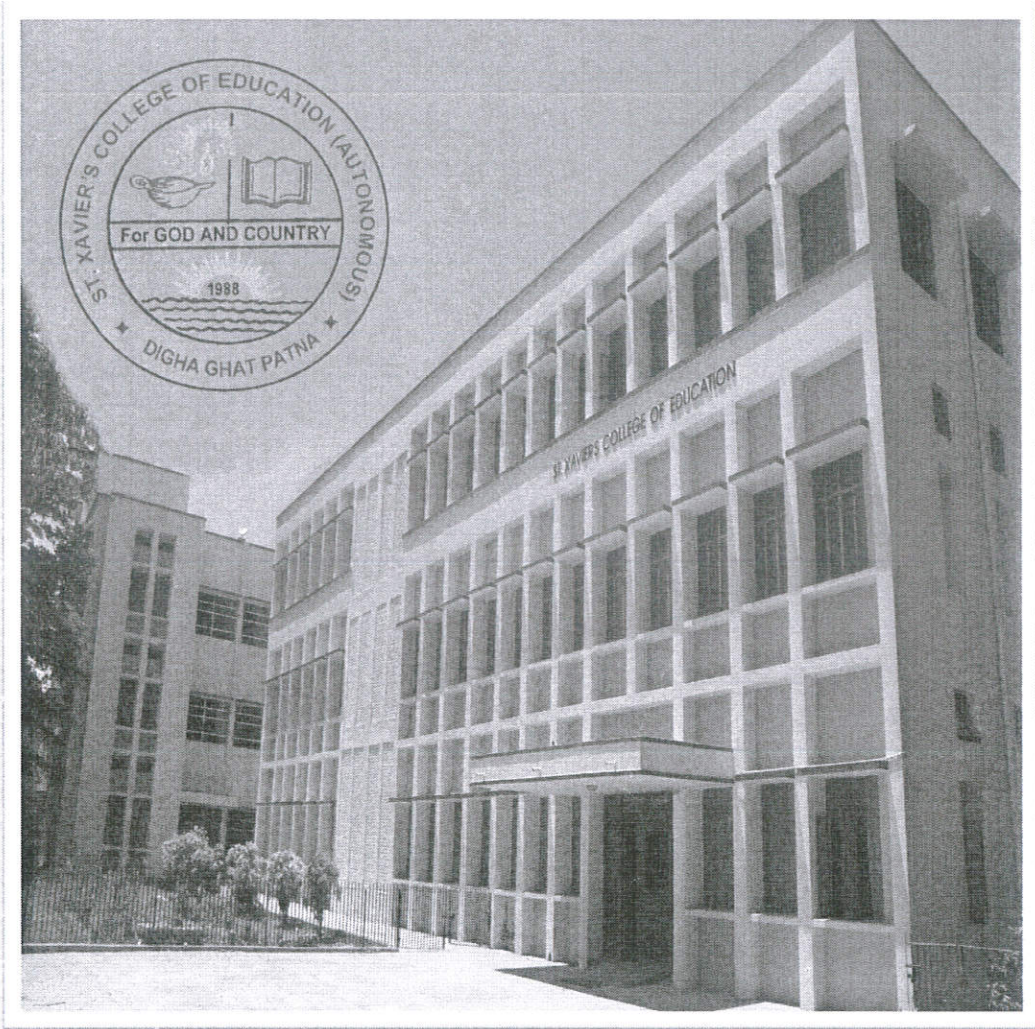# ST. XAVIER'S COLLEGE OF EDUCATION (AUTONOMOUS) PATNA

NAAC Accredited with 'A' Grade (3rd Cycle)

Aryabhatta Knowledge University

Syllabus for Ph.D. Course Work in Education

(Approved by Board of Studies, dated 16.03.2024 and Academic Council Meeting, dated 20.03.2024)

ST. XAVIER'S COLLEGE OF EDUCATION (AUTONOMOUS), PATNA

COURSE WORK FOR Ph.D. IN EDUCATION

COURSE OBJECTIVES

To enable the students to gain understanding and skills on :

- The meaning of scientific method, scientific inquiry, Paradigm, theory and their Implications for educational research.
- The characteristics of philosophical, psychological and sociological and historical researches in education.
- The different Qualitative and Quantitative approaches in research.
- The techniques of developing a research proposal.
- The concept of Sampling and Formulation of Hypothesis.
- The various types of tools of data collection and their standardization.
- Data analysis using techniques of research both quantitative and qualitative.
- Descriptive and Inferential techniques of data analysis.
- Use of Computer in different stages of research and data analysis.
- Qualities of a Good research Report.
- Ethical Issues in Research.

P1: METHODS OF RESEARCH AND QUANTITATIVE DATA ANALYSIS

F.M.-100 (Credits: 04)

THEORY: 60 Marks

CONTENTS

UNIT-I Nature of Research, Knowledge and Inquiry

- Nature and sources of knowledge, scientific inquiry, scientific method
- Paradigm, theory, model and approach in Research: positivist and non-positivist (humanities) paradigms and their implications for educational research
- Methods of Research: Quantitative Methods and Qualitative Methods; Qualitative data: Methods of its analysis with emphasis on content analysis; analysis of interview based data and observation based data
- Philosophical, psychological, sociological and historical orientation in educational research
- Interdisciplinary and intra-disciplinary research and its implications

UNIT-II Descriptive Statistics

- Scales of measurement- Nominal, Ordinal, Interval and Ratio
- Concept, calculation and uses of
  a) Measures of central tendencies
  b) Measures of variability
  c) Percentiles and Percentile Ranks

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UNIT- III Inferential Statistics

- Meaning and purpose of parametric test and non-parametric test and their differences
- Parametric Tests -
  a) Tests of significance of mean and of difference between means (both large and small samples), one and two tailed tests
  b) "t" test, its meaning, purpose; assumptions and uses
  c) Analysis of variance technique of "F" test
- Non-Parametric Tests -
  a) Chi-square test, its purpose and use
  b) Median test and sign test

UNIT-IV Computer Applications for Data Analysis and Research

- Use of Spreadsheet applications: Using formulas and functions, Data storing, Features for Statistical data analysis, Generating charts/ graph and other features. Tools used may be Microsoft Excel, Open office or similar tool, plotting of graphs
- Use of word processing & Presentation skills: creating presentation, showing presentation. Tools used may be Microsoft Power Point, Open Office or similar tool
- Using advanced search techniques: Online Research Repositories and Journals; Online Research tools
- Idea of MOOCs and its development, Popular MOOC platforms: Indian and Global
- Using SPSS/PSPP for Data analysis: Working with Parametric and Non-Parametric tests

PRACTICUM:40 Marks

Prepare a Report and Presentation on any four (04) of the following:

I. Review of one reference book (related to your area of interest/proposed area of research)
    (10 marks)
II. Literature survey on the chosen problem (10 marks)
III. Performing a Parametric test and a Non-Parametric test on any set of supplied data using SPSS or any other related analysis software. (10 marks)
IV. Organization and representation of Data: Frequency distribution, Frequency Polygon, Histogram, Ogive, Smoothed Frequency Curve, Cumulative frequency curve. (10 marks)
V. Preparation of Research tool using online application (Google form) (10 marks)

P2: METHODS OF EDUCATIONAL RESEARCH AND ADVANCED STATISTICS

F.M.-100 (Credits: 04)

THEORY: 60 Marks

CONTENTS

UNIT- I Methods of Educational Research

- Fundamental, Applied and Action Research
- Experimental & Ex-post facto Research
- Philosophical & Historical Research; Survey; Case Study; Developmental; Ethnographic; Documentary-analysis
- Hypothesis - nature, definition, types, sources, characteristics of a good hypothesis; directional and non-directional hypothesis, Level of Significance, degrees of freedom, Type I & II error
- Sampling: Unit of sampling, population; techniques (a) probability sampling techniques & (b) non-probability sampling techniques; Characteristics of a good sample; Sampling errors and how to reduce them; Tables of Random Numbers

UNIT- II Developing a Research Proposal and Research Report

- Problem and its sources; Selection and Definition of problem
- Format, Style, Content and Steps in Writing a Research Proposal (Ph.D. and Research Grant)
- Format, Style, Content and Chapterisation of a Research Report (Thesis, Article, Project Book and Book Review)
- Techniques and sources in reviewing literature, citing and referencing styles
- Ethical Issues in Writing a Research Report (Anti-plagiarism and Copyright Rules)

UNIT-III Tools and Techniques of Data Collection

- Meaning, Nature, Development and Standardization
- Observation; Interview; Sociometric techniques
- Questionnaire, Rating scales; Interview schedules, Attitude scales and Achievement test
- Reliability and Validity of various tools and techniques
- Method, Criteria and Standards of Evaluating a Research Report (Thesis Evaluation, Article Evaluation-Impact Factor and Indexing)
- Validity and Limitations of findings; factors influencing validity of research; internal vs. external validity; how to increase validity of research findings

UNIT- IV Advanced Statistical Techniques

- Advanced Techniques of Correlation
  a) Meaning and purpose of correlation.
  b) Concepts and Uses –Pearson's Correlations; Partial and Multiple correlation
- Regression and Prediction
- Factor-Analysis Technique

PRACTICUM: 40 Marks

Prepare a Report and Presentation on any four (04) of the following:

I.	Writing a Research Proposal of Ph.D. study (related to your area of interest/proposed area of research)	(10 marks)
II.	Development and standardization of one tool of data collection (qualitative/quantitative)	(10 marks)
III.	Writing a research paper on an educational topic (qualitative/quantitative)	(10 marks)
IV.	Sociometric Analysis of a social group	(10 marks)
V.	Case Study on an educational problem	(10 marks)

SUGGESTED READINGS FOR THE COURSE

Best, J.W. and Kahn, J. V., Research in Education 7th Edn., New Delhi: Prentice Hall of India Pvt. Ltd., 1995.

Bogdan, R.C. and Taylor, S.J. *Introduction to qualitative research methods: A phenomenological approach to the social sciences*, Boston: Allyn & Bacon, 1975.

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Edwards, A. L., Experimental Designs in Psychological Research, New York: Holt, Rinehart & Winston Inc., 1960.

Ferguson, G A., Statistical Analysis in Psychology and Education, 5 Ed., Tokyo: McGraw Hill, Kegakusha Ltd., 1981.

Festinger, U and Katz, D. (Eds.) Research Methods in Behavioural Sciences, New York: Holt, Rinehart & Winston 1970.

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Goode, W. J. and Hill, Method of Social Research in Teaching, Mc Graw Hill, 1952. Guilford, J.P. &Freachter, B., Fundamental Statistics in Psychology and Education, 6th edn., Tokyo: Mc Graw Hill Kegakusha Ltd., 1978

Kaul, L. Methodology of Educational Research, New Delhi: Vikas Pub. House, 1994. Kerlinger, F.N. Foundations of Behavioural Research New York: Holt, Rinehart and Winston Inc. 1973.

Kirk, J. and Miller, M.L. *Reliability and Validity in Qualitative Research*, Sage Publications, Newbury Park, California, 1986.

Lehmann, I. J. &Mearens W.A. (Eds.), Educational Research Readings in Forces, IBH Publishing Co., 1979.

Lindquist, E.F., Statistical Analysis in Educational Research, New Delhi: Oxford & IBHPublishing Company Co., 1970.

Miles, M.B. and Huberman, A.M. *Qualitative Data Analysis: A Sourcebook of New Methods*, Sage Publications, Newbury Park, CA, 1984.

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Moulay G. J., Science of Educational Research, New Delhi: Eurasia. 1964.

Strauss, Anselm and Juliet Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques.* Newbury Park, CA: Sage Publications.

Sukhia, S.P., Mehrotra, R.N. & Mehrotra, P.V, Elements of Educational Research, 3 ed., Bombay: Allied Publishers, 1974.

Taylor, S.J. and Bogdan, R. (1984) *Introduction to qualitative research methods: The search for meanings*, New York: John Wiley.

Van Maanen, J. (ed.). *Qualitative Methodology*, Sage Publications, Newbury Park, CA, 1983.

Verma, M., Introduction to Educational and Psychological Research, New Delhi: Asia Publishing House, 1969.

Walker, H.M. & Leo, J, Elementary Statistical Methods, Calcutta: IBH, Publishing Co., 1965.

Weitzman, E.A. and Miles, M.B. *Computer Programs for Qualitative Data Analysis*, Sage, Thousand Oaks, 1995.

Wolcott, H.F. *Writing Up Qualitative Research*, Sage Publications, Newbury Park, California, 1990.